

### **REMARKS/ARGUMENTS**

This Amendment is responsive to the rejections made in the final Office Action mailed on November 20, 2006 in which claims 1-18 were pending, with claims 15-18 previously withdrawn from consideration. Claims 1-14 were rejected in the Office Action. By this response claim 1 is amended and claims 9-14 are canceled. Consideration of this response and allowance of claims 1-8 are requested.

Claims 1-4 and 9-10 were rejected under 35 U.S.C. §103 as being unpatentable over the Albrecht et al. U.S. Patent 6,288,876 in view of the Boquillon et al. U.S. Patent 5,151,134 or the Yeung et al. U.S. Patent 5,482,561. Claims 5-8 and 11-14 were rejected under 35 U.S.C. §103 as being unpatentable over the Albrecht, Boquillon and Yeung references as applied to claims 1-4 and 9-10, and further in view of the Hosoya et al. U.S. Patent 5,319,138. Briefly, the Albrecht patent is said to disclose a head suspension having a lift tab and the use of laser energy to smooth the lift tab. The Office Action acknowledges that the Albrecht patent does not disclose cleaning contaminated surfaces of a head suspension, but asserts that the process shown in that patent will inherently clean the surface. The Boquillon and Yeung patents are said to disclose the use of lasers for surface cleaning. The position was taken that it would have been obvious to incorporate the teachings of the Boquillon or Yeung patents into the Albrecht process. Addressing arguments presented by the applicant in the September 12, 2006, response to a similar rejection, the Office Action asserts that one of ordinary skill in the art would expect that using laser energy to vaporize surface contamination as disclosed in the Boquillon or Yeung patents would vaporize contaminants on the surface of a head suspension. The Office Action also supports this position with the assertion that all the references pertain to the same field of endeavor – laser cleaning.

The applicant continues to disagree with this position. However, to more particularly point out and distinctly claim the applicant's invention, and to distinguish this invention from the prior art of record, claim 1 is amended by this response to recite a method for manufacturing a head suspension component. All pending claims 1-8 now recite providing a ribbon having one or more spring metal head suspension components extending from the

ribbon, and separating a component from the ribbon at an attachment region. A contaminated surface having adhered spring metal remnants is formed at the attachment region during the separating step. The laser beam is patterned such that a single pulse extends across a portion of the head suspension component including the contaminated surface. The patterned laser beam is then applied to laser clean the contaminated surface by vaporizing the adhered spring metal remnants. A suspension manufacturing method of this type is neither taught nor suggested by the prior art of record.

Even assuming for purposes of argument that the process disclosed in the Albrecht patent does inherently provide a “cleaning” function, that process is considerably different than the manufacturing method recited in the applicant’s amended claims. The primary focus of the process shown in the Albrecht patent is on melting a very thin surface layer of the headlift to smooth the headlift surface. The smoothing is done to minimize particle generation and wear of the load/unload ramp that the lift tab contacts during operation in a disk drive. Unlike the claimed invention, this patent does not disclose a process for cleaning a contaminated surface having spring metal remnants produced when the component was separated from a ribbon during its manufacture. Nor is any ancillary “cleaning” done by the method shown in the Albrecht patent produced by a vaporizing process. The Albrecht patent discloses only the use of laser energies that melt and smooth the headlift. In fact, the Albrecht patent states that it is important minimize the amount of heating on the lift tab because excessive heating can cause the tab to warp. The laser processing application disclosed in the Albrecht patent is for these reasons substantially unrelated to the application of the claimed invention – the use of lasers to clean spring metal remnants from contaminated surfaces where the suspension component is separated from a ribbon.

The Boquillon and Yeung patents do generally disclose applications involving the use of lasers for cleaning purposes. The method disclosed in the Yeung patent vaporizes and/or decomposes deposits. Material is volatilized by the process disclosed in the Boquillon patent. But the processes shown in these patents are otherwise very different than those recited in the claimed invention.

Both the Boquillon and Yeung patents disclose the use lasers to clean contamination that is different than the material of the base surface from which the contamination is being removed. In particular, the Boquillon patent discloses a process for cleaning pollutants from surfaces. Historic monuments, wooden furniture, glass, pottery and metals are given as examples of the types of surfaces that can be cleaned of pollution resulting from their use in a soiling or aggressive environment. Another example is the cleaning of lubricants and residual oxides from forged tubular products. The method disclosed in the Yeung patent is used for cleaning molding compounds, carbonaceous materials and other organic deposits from sand particles used in foundry operations. In contrast, the claimed invention cleans remnants of the same spring metal material as the as the contaminated surface of the head suspension component.

The Boquillon patent discloses a system for cleaning relatively large scale surfaces – surface areas having sizes on the order of or larger than the laser beam produced by the systems. For example, this patent estimates that the process described therein can restore a surface equal to a square meter in an hour. Similarly, the Yeung patent discloses a method for cleaning sand transported on a conveyor belt. The sand can be in the form of discrete piles or evenly distributed. Although one described example uses a laser beam spot diameter that was less than or equal to the sand particle size, the patent recognizes that the cleaning rate and efficiency can be increased by increasing the laser exposure zone through which the sand is passed to allow for the exposure of relatively large amounts of sand in a continuous cleaning process. Unlike the claimed invention that includes the step of patterning the laser beam so that a single pulse extends across a portion of the suspension component, including the contaminated surface, these prior art methods do not involve the positioning of the laser beam at a precise location during the cleaning process.

The Albrecht patent is not focused on a laser-based method for cleaning a head suspension component. It certainly does not teach a method for cleaning remnants from a contaminated surface where the component is separated from a ribbon. Nor does the Albrecht patent disclose or even suggest a vaporization operation for any purpose. These differences between the process shown in the Albrecht patent and those of the recited

invention are significant. Furthermore, a person of ordinary skill in the art would have no reason to pick and choose specific features from the Boquillon or Yeung patents and incorporate them into the method shown in the Albrecht patent. These two patents are directed to laser cleaning applications that are very different than the head suspension component cleaning process of the claimed invention. They are not used to remove spring metal remnants that are the same metal as the metal of the contaminated surface. Nor do they disclose precision component cleaning applications. In fact, assuming solely for the purposes of argument that the individual features of these references could be combined in the manner suggested in the Office Action, the resulting method still would not include all the features of the claimed invention. None of these references, for example, discloses a method for cleaning spring metal remnants from a contaminated surface that are formed when separating a component from a ribbon. Withdrawal of the rejection of claims 1-8 is requested for these reasons.


Since claims 9-14 are canceled, the rejection of these claims is now moot.

In conclusion, all of the claims remaining in this application are in condition for allowance. Notice to that effect is respectfully solicited. If there are any remaining questions, the Examiner is requested to contact the undersigned at the number listed below.

Respectfully submitted,

FAEGRE & BENSON LLP

By:

  
Walter C. Linder, Reg. No. 31,767  
612/766-8801  
Customer No.: 25764

Dated: May 18, 2007